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## THE ODONATE GENUS ORTHOLESTES.

BY PHILIP P. CALVERT.

In *Entomological News* for December, 1891 (Vol. II, p. 199), I briefly described an Odonate from Jamaica as *Ortholestes clara* new genus and species, and added that a detailed description would appear later. The present paper is a fulfillment of that promise. Since then I have seen two additional specimens of *O. clara* and have found a new species, *O. abbotti*, from Hayti. *Ortholestes* is an Agrionine of the legion *Lestes* Selys.

*Generic Characters*.—(1) Wings ceasing to be petioled about as far in front of the basal post costal cross vein as the latter is long.

(2) Median sector separating from the principal at less than one-third the distance from the arculus to the nodus, the subnodal arising one cell after the median.

(3) Quadrilateral distinctly trapezoidal, superior side longer than one-half the inferior, (4) internal side one-third to one-fourth the inferior.

(5) Ultra-nodal sector unbroken or but very slightly angulated; (6) subnodal and short sectors hardly more angulated.

(7) Nodal sector arising from two and a half to four cells after the nodus.

(8) No supplementary sectors between the median and short sectors.

(9) With supplementary sectors forming an irregular network (7–16 marginal cells) between the subnodal and median sectors.

(10) Pterostigma three times as long as wide.

(11) Hairs of the feet long (more than twice as long as the spaces separating them).

(12) Prothorax with the hind margin rounded and but very slightly, if at all, emarginated in the middle.

Until the publication of *Ortholestes*, the legion *Lestes* Selys was known to contain but five ("sub-") genera: *Megalestes* of Southern India, *Archilestes* of tropical America, the cosmopolitan *Lestes*, the Palearctic *Sympyga*, and *Platylestes* of Southern India. The genus *Ortholestes*, while undoubtedly belonging to this legion, differs from some of the minor legionary characters as laid down by De Selys (Bull. Ac. Roy. Belg. (2) xiii, pp. 288–338, 1862) by those above

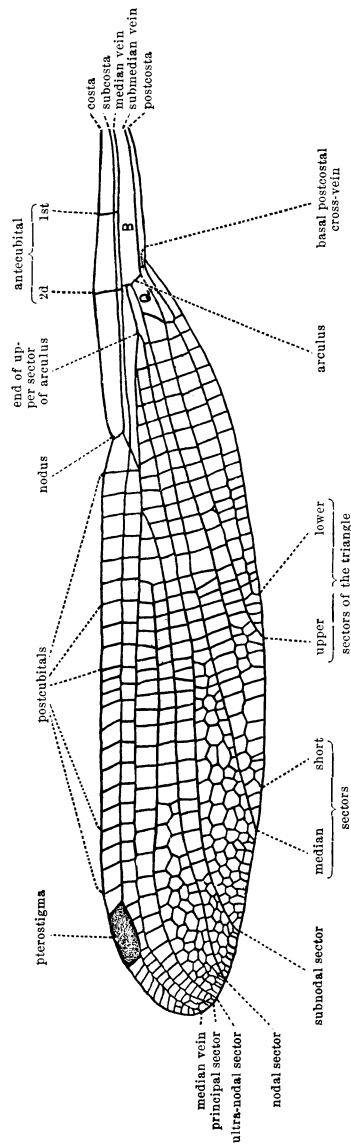


FIG. 1.

Front wing of *Ortholestes clara* ♂.  
B, basilar space. Q, quadrilateral.

numbered as 3, 5, 6 and 8, and from the genera, *in addition to the legionary differences*, as follows:

From *Megalestes* by 9.

From *Archilestes* by 1, 2, 4, 7 and 10.

From *Lestes* by 1.

From *Sympycna* by 1, 4, 7, 11 and 12.

From *Platylestes* by 1.

Additional differences from *Megalestes* and *Platylestes* may exist, as I have not seen examples of these two genera.

Other details of generic structure in *Ortholestes* are: the absence of supplementary sectors between the ultra-nodal and the principal, although the last one or two intervening cells may be divided. *Archilestes*, *Lestes* and *Sympycna* also agree here.

Between the ultra-nodal and nodal sectors are two or more supplementary sectors which are quite broken and form an irregular net work with 4-8 marginal cells. In *Archilestes*, *Lestes*<sup>1</sup> and *Sympycna* there are usually but two supplementary sectors between ultra-nodal and nodal; they are quite distinct and regular; the upper one commences 1-2 cells before the lower one and is usually unbroken (*Lestes* and *Sympycna*) or somewhat broken (*Archilestes*); the lower one is usually much broken; the number of marginal cells between nodal and ultra-nodal is 3-6.

The ultra-nodal sector arises at about the level of the fifth or sixth post-cubital, and therefore at about one-third the length of the post-cubital series. In *Archilestes*, *Lestes* and *Sympycna*, the same sector more usually arises near the middle of that series.

Two to eight marginal cells may be present between the nodal and subnodal sectors, depending on the degree of development of supplementary sectors.

The supplementary sectors between the subnodal and median sectors are much broken.

The basal postcostal cross-vein is placed distinctly nearer the level of the second than of the first ante-cubital; the reverse is usually the case in *Archilestes*, *Lestes* and *Sympycna*. These relations may be stated in another way by saying that in *Ortholestes* the first ante-cubital lies but little beyond half way from the base of the

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<sup>1</sup>The statements here made for *Lestes* are based on the following 17 species; *unguiculata*, *uncata*, *disjuncta*, *forcipata*, *inequalis*, *vigilax*, *rectangularis*, *forcifcula*, *curina*, *congener*, and *tenuata* of North America; *viridis*, *nympha*, *sponsa*, *virens* and *barbara* of Europe; *Colenisonis* of New Zealand.

wing to the second ante-cubital, while in the other three genera it is usually at two-thirds that distance.

The ninth abdominal segment is at least twice as long as the tenth; the appendages are longer than the tenth. In *Lestes* the appendages of the females are shorter than 10.

Recently, I have expressed the opinion<sup>2</sup> that the Calopteryginae are to be looked upon as representing the most primitive of the living subfamilies of the Odonata, that from them the Agrioninae are descended, and that of the latter group the legion *Lestes* is phylogenetically the oldest. De Selys long ago suggested<sup>3</sup> that the Calopterygine genus *Amphipteryx*, of tropical America, stands in near relationship to the *Lestes*. Whether we look upon *Amphipteryx* as most nearly approaching the ancestral form of the *Lestes* or not, if we accept the general phylogenetic series above sketched, *Ortholestes* possesses more primitive characters than any other genus of its legion in those above numbered 3, 5 and 6. If we go a step farther and attach a direct ancestral importance to *Amphipteryx*, then may we look upon characters 1, 9 and 11 as relatively long inherited, while 8 appears to be much more lately acquired and quite distinctive of *Ortholestes*.

***Ortholestes clara*** Calvert, Ent. News II, p. 199, 1891.

♂. *Head. Teneral*: labrum, clypeus, middle only of top of head brown with a slight metallic, bluish reflection; labium, mandibles, yellow; genæ, sides of frons and vertex bright yellow, but with a brown patch adjoining the margin of the eyes opposite the vertex; antennæ yellow. *Adult*: labrum, clypeus, frons and vertex dark metallic blue or black, a small orange spot on the outer side of each posterior ocellus, a pruinose spot around anterior ocellus, a small pruinose postocular spot each side; labium, mandibles except at tips, genæ, pale luteous (perhaps yellow or even blue in life); antennæ black, first and second articulations yellowish.

*Thorax. Teneral*: brown; prothorax with a small yellow spot each side on middle lobe, hind margin yellowish; remainder of thorax with the following yellow: an antehumeral stripe not attaining the antealar sinus, a complete humeral stripe, a lateral stripe in front of the metastigma with a small spot above, the two forming a reversed! all behind the second lateral suture, pectus. *Adult*:

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<sup>2</sup>Trans. Am. Ent. Soc. XX, p. 212, 1893.

<sup>3</sup>Monog. Calopt. p. 241, 1854.

dark blue or black with a metallic reflection, thorax almost entirely pruinose, yellow markings obliterated.

Legs brown, paler inferiorly, yellow at bases (teneral); darker, somewhat pruinose (adult).

*Abdomen* rather slender. *Teneral*: brown; base of 1 yellowish on dorsum; 3-9 with a transverse, basal, yellow ring, interrupted on the middle line on 3, on 9 very small and connected by a mid-dorsal line with a larger apical, yellow spot; greater part of dorsum of 10 and a lateral stripe on 2 and 3 bright yellow. *Adult*: black; yellow markings less distinct anteriorly, obliterated on 8-10, dorsum of 9-10 pruinose.

Superior appendages as long as 9, somewhat forcipated. Each has on its upper outer margin, just beyond the middle, 5-6 small spines; lower inner margin much dilated and with two teeth in the apical half, the more basal of which is rounded and lies opposite the spines of the upper margin, while the more apical tooth is



FIG. 2. Profile view, appendages of *O. clara* ♂

smaller, somewhat triangular, its apex slightly notched; beyond this second tooth the remainder of the appendage, about one-sixth of the entire length, continues as a cylindrical piece with a rounded apex.

Inferior appendages about half as long as the superiors; viewed from the side, each is rather thick at the base, becoming slender distally, with a small acute tooth near the middle of the upper margin, apical half slender, curved upward, apex acute. Viewed from below, the two inferiors are closely approximate in their basal halves, the slender apical halves separated from each other at first, converging posteriorly.

Wings hyaline. Pterostigma and reticulation luteous (teneral) or black (adult), the former surmounting 3-4 cells. 18-23 post-cubitals on front wings, 15-19 on hind wings.

♀ similar in coloring to the teneral ♂ from which it differs as follows: humeral stripe and that in front of the metastigma confluent at their upper ends, but with the spot of the reversed! distinct; a short, oblique, isolated, brown stripe behind the second lateral suture; abdomen somewhat thicker; basal ring on 3-8, very small on 8, interrupted on 3 and sometimes on 4; a small lateral spot on

4; a small lateral spot on 8, apical dorsal half of 9 and the lateral stripe on 2-3, yellow; yellow spots on dorsum of 10 extremely small or absent. Appendages dark brown, longer than 10, not denticulated. Genital valves brown, margins not denticulated. Pterostigma luteous (teneral), light brown (adult). 18-23 post-cubitals on front wings, 17-20 on hind wings.

Measurements. Total length ♂ 41.5-47 mm., ♀ 37-40. Abdomen (including appendages) ♂ 34-38, ♀ 29-31.5. Front wing ♂ 25.5-30, ♀ 26-29. Hind wing ♂ 24.5-29, ♀ 25-28. Pterostigma 2-2.25. Superior appendages ♂ 1-1.33. Appendages ♀ .8.

Described from the original four types, viz., one male, one female, Kingston, Jamaica, May, 1890, by E. M. Aaron (Collection of P. P. Calvert); one male, Kingston, by W. J. Fox (Coll. American Entomological Society); one female, Jamaica, by C. W. Johnson (Coll. Wagner Institute of Science); ——— and from two additional males, both from the Bath district of Jamaica by Mrs. Swainson (one in Coll. Institute of Jamaica at Kingston, the other in Coll. P. P. C.).

*Ortholestes abbotti* n. sp.

♂ closely resembling *O. clara*. Differs by the shape of the superior appendages in that the more basal of the two inferior teeth is not so clearly distinct from the dilatation of the lower margin,



FIG. 3. Profile view, appendages of *O. abbotti* ♂

while the more apical tooth is transformed into a slender, acute, somewhat curved spine, situated on the apical side of the basal tooth, and directed backward; the cylindrical terminal portion of the appendage forms about one-fourth the entire length.

Measurements. Total length 39 mm. Abdomen (incl. app.) 31.5. Front wing 24. Hind wing 23. Pterostigma nearly 2. Superior appendages 1.3. Female unknown.

Described from one male from Hayti, by Dr. W. L. Abbott (Collection of the American Entomological Society).